

Docket No.: 50198-154

PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :
Trevor Douglas, et al. :
Serial No.: :
(Continuation of Serial No. 08/775,366) : Group Art Unit: To be assigned
Filed: December 12, 2000 : Examiner: To be assigned
For: NANOSCALE PARTICLES SYNTHESIZED WITHIN AN ASSEMBLED
VIRION

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Prior to examination, please amend the application as follows:

IN THE SPECIFICATION:

Page 7, line 8, please change "biometric" to --biomimetic--.

Page 8, line 6, please change "discreet" to --discrete--.

Page 11, line 1, after "invention" please insert --is--.

Page 16, line 11, please change "icosohedral" to --icosahedral--.

Page 25, line 1, please change "monlayers" to --monolayers--.

IN THE CLAIMS:

Please cancel claim 1 in the application and add the following new claims:

21. A virion-constrained nanoparticle comprising a non-plant virion coat protein shell surrounding a nanoparticle of non-viral origin selected from the group consisting of organic, inorganic and organo-metallic materials.
22. The plant virion-constrained nanoparticle according to claim 21, wherein said nanoparticle of non-viral origin comprises an organic material.
23. The virion-constrained nanoparticle according to claim 21, wherein said nanoparticle of non-viral origin comprises an inorganic material.
24. The virion-constrained nanoparticle according to claim 21, wherein said nanoparticle of non-viral origin comprises an organo-metallic material.
25. A virion constrained nanoparticle according to claim 21, wherein said virion constrained nanoparticle comprises particles having dimensions substantially in the nanometer range and which comprise a collection of atoms and/or molecules ranging in number from 1 to the number that can fit inside the volume of the selected virion whereby the maximum number of atoms and/or molecules in a virion constrained nanoparticle is determined by the size of the nanoparticle and the size of the virion inner cavity.

26. A virion constrained nanoparticle according to claim 21, wherein said virion is selected from the group consisting of prokaryotic, protozoan, eukaryotic viruses and virus-like particles Bacteriophage and Protozoan varions.

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27. A virion constrained nanoparticle according to claim 26, wherein prokaryotic viruses comprise Plasmaviridae, SSv1 group viruses, Lipothrixviridae, Cystoviridae, Corticoviridae, Myoviridae, Siphoviridae, Podoviridae, Microviridae, Inoviridae and Leviviridae.

28. A virion constrained nanoparticle according to claim 21, wherein said virion is a eukaryotic invertebrate selected from the group consisting of Poxviridae, Entomopoxviridae, Baculoviridae, Eubaculovirinae, Nudibaculovirinae, Polydnnaviridae, Ichnovirus, Iridoviridae, Bracovirus, Parvoviridae, Flaviviridae, Tagviridae, Bunyaviridae, Rhabdoviridae, Reoviridae, Bimaviridae, Picornaviridae, Tetraviridae and Nadoviridae.

29. A process for producing virion-constrained nanoparticles comprising a non-plant virion coat protein shell surrounding a nanoparticle of non-viral origin comprising the following steps:

- providing isolated and substantially purified animal virion coat protein shells containing controllable gates;

- b) incubating the virion coat protein shell in a solution comprising one or more organic, inorganic, and/or organometallic materials under conditions that permit controlled entry of the materials into the virion shell;
- c) adjusting the solution conditions in such a manner that the virion coat protein shell entraps the materials of step b); and
- d) isolating the virion-constrained nanoparticles produced.

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30. The process according to claim 29, wherein said coat protein of said virion is the cowpea chlorotic mottle virus coat protein.

31. The process according to claim 29, wherein said nanoparticle of non-viral origin comprises an organic material.

32. The process according to claim 29, wherein said nanoparticle of non-viral origin comprises an inorganic material.

33. The process according to claim 29, wherein said nanoparticle of non-viral origin comprises an organo-metallic material.

34. A process according to claim 29, wherein said virion is selected from the group consisting of prokaryotic, protozoan and eukaryotic viruses and virus-like particles.

35. A process according to claim 34, wherein said prokaryotic viruses comprise Plasmaviridae, SSv1 group viruses, Lipothrixviridae, Cystoviridae, Corticoviridae, Myoviridae, Siphoviridae, Podoviridae, Microviridae, Inoviridae and Leviviridae, and Bacteriophage, Protozoan, algal and fungal virions.

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36. A process according to claim 29, wherein the adjustment of one or more conditions is selected from the group consisting of changes in pH, changes in ionic strength, the presence of metal ions, and the presence of chelators.

37. A process according to claim 29, wherein said non-virial nanoparticle is an inorganic material selected from the group consisting of metal salts, metal oxides, non-metal oxides, metal chalcogens, non-metal chalcogens, covalent solids, and coordination compounds.

38. A process according to claim 29, wherein said non-viral nanoparticle is an organic material selected from the group consisting of polypeptides, glyco proteins, sweeteners, flavoring agents, drugs and salts thereof.--

REMARKS

Prior to examination, please enter the foregoing amendment. This amendment limits the claims to non-plant virion coat proteins to distinguish the claims from the claims in the Applicants' parent application Serial No. 08/775,366, which has now been allowed.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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